Summary Sheet

Respiratory Risk Assessment

Development of post-operative pulmonary complication (PPC) is a common event following major surgery and the incidence has been found to vary from between 2 and 19%[1]. There have been many attempts to identify patients at risk, but reviews of the studies have detected significant bias in terms of patient co morbidities, operations and definition of PPC amongst others. The American College of physicians has provided some guidance on what potential risk factors may predispose post-operative pulmonary complications and the grade of evidence, however this has not translated into a meaningful scoring system that is easy to use in the pre-operative setting.

Currently the most validated and easy to use scoring system is ARISCAT[2], prospectively developed from a large data set and subsequently validated in a large European cohort it appears to identify subjects at different risk of PPC.

The overall score splits subjects into three risk groups

- Low risk < 26 points – Risk of PPC 2%
- Intermediate risk 27-44 points - Risk of PPC 12%
- High-risk > 44 points - Risk of PPC 50%

Table 1. The Seven ARISCAT Risk Predictors, β Regression Coefficients, and Points Assigned*

	β Regression Coefficients	Score
Age (yr)		
≤50	0	0
51–80	0.331	3
>80	1.619	16
Preoperative SpO_2		
≥96%	0	0
91–95%	0.802	8
≤90%	2.375	24
Respiratory infection in the last month		
No	0	0
Yes	1.698	17
Preoperative anemia (Hb ≤10 g/dl)		
No	0	0
Yes	1.105	11
Surgical incision		
Peripheral	0	0
Upper abdominal	1.480	15
Intrathoracic	2.431	24
Duration of surgery (h)		
<2	0	0
2–3	1.593	16
>3	2.268	23
Emergency procedure		
No	0	0
Yes	0.768	8

*Three levels of risk were indicated by the following cutoffs: <26 points, low risk; 26–44 points, moderate risk; and ≥45 points, high risk.
ARISCAT = Assess Respiratory Risk in Surgical Patients in Catalonia; Hb = hemoglobin; SpO_2 = arterial oxyhemoglobin saturation by pulse oximetry.

References:

1. Fisher BW, Majumdar SR, McAlister FA. Predicting pulmonary complications after nonthoracic surgery: a systematic review of blinded studies. Am J Med 2002;112:219-25.
2. Mazo V, Sabate S, Canet J, Gallart L, de Abreu MG, Belda J, Langeron O, Hoeft A, Pelosi P. Prospective external validation of a predictive score for postoperative pulmonary complications. Anesthesiology 2014;121:219-31.